Experience with a computer typesetting system & the next step in producing a newspaper

Dr T. A. Margerison & S. V. Stephens

When we decided to set up a web offset Computerset daily newspaper, a hasty investigation of all the available photo typesetting machines showed that none of them was suitable. Sophisticated machines like the Linofilm and Lumitype 200 or Lumitype 540 were very flexible, but were too slow and much too expensive. The simpler machines such as the ATF were also slow and expensive, and had the added disadvantage of poor flexibility. Just at this time the Lumitype 713 prototype was disclosed. It fulfilled most of our requirements and we ordered three machines from the drawing board.These machines will work directly from TTS tape, but line length, type size, etc, has to be set manually. Our aim was to allow any tape to be set on any machine without manual intervention, so clearly we had to punch the various function codes direct into the tape.

We looked at the various methods of setting type with the aid of a computer which were then being used in the United States. They appeared to have one major disadvantage for our application—a tendency to generate errors. Now in hot metal setting, errors, although a costly and time-wasting nuisance, are not catastrophic. They are put right merely by removing the offending slugs and replacing them with corrected ones. Corrections in photo typesetting present a different problem. Someone has to cut a slip of paper with the correction on it exactly to size and paste it, right way up and parallel with the other lines, in position on the page. Even for skilled paste-up men the job is fiddly and time-consuming, and the chance of losing or tearing a flimsy strip of paper is very high.

This was the thinking behind our 'on-line' Computerset system which we designed for Reading. The computer's memory serves instead of 'idiot' tape which not only removes one tape-handling operation. More important, the on-line system enables operators to correct mistakes before they are committed to paper tape. The theory is that by enabling corrections to be made on the keyboard by one or two key strokes operators will pick up the majority of their own mistakes. The actual Computerset system has been described several times before, more or less accurately, so I shall not describe it further here.

The first lesson we have learnt is the tremendous importance of having properly trained and highly skilled operators on the keyboards. In general, in learning a new keyboard, people who are already skilful in using a different kind of keyboard are at a great disadvantage. In Reading we were committed to employing the operators who had been using Linotype machines for the *Evening Post's* predecessor, the weekly *Reading Standard.* The transition to a TTS keyboard was particularly difficult for them since issues of the weekly paper had to be brought out up to the week preceding the birth of the *Evening Post.* We were disappointed by the speeds they achieved, which limited the size of the paper in the early days. But their work has steadily improved. Currently seven operators seem to have little difficulty in setting a 22–24 page paper containing as much as 14,000 lines.

In many American newspapers where high TTS speeds are claimed, operators work on long "takes" of straight matter. In Reading every character 18 pt and below, including all the classified advertisements, classified display, racing programmes, stock markets, football results, and what you will, pass through our Computerset keyboards. We have some operators who can set straight matter at high speed in Reading. But the average overall matter is much lower. We sacrifice some speed, too, to encourage accuracy. Our operators are still not as accurate as we would like them to be, but, at their present level of training, we produce a paper as clean as most with a minimum amount of reading.

The result of using the Computerset system is that we have reduced considerably the number of operators and readers employed compared with a conventional newspaper plant. A recent study made by some of my colleagues showed that where in our most efficient hot metal plant we would require twenty operators and eight readers, in a Reading-type operation to do the same job we would require only ten operators and five readers. Surprisingly, capital costs are also reduced. Two Lumitype Textmasters, twelve keyboard units and a computer cost about £80,000. 22 Linotype machines cost £100,000. But this lower capital cost is lost in the difference in depreciation between the two systems: $6\frac{2}{3}$ per cent for Linotype machines, compared with at least 10 per cent for electronic equipment.

The Computerset system has proved to be highly reliable. We have suffered only one fault in our computer. At first the Invac keyboards (which are now being sold by Intertype) gave us some trouble, but these have settled down. The Invac punches have been highly reliable, but there have been some maintenance problems with the printers, which are modified IBM machines. The 713s are now also working quite reliably. Our total maintenance staff, which is also responsible for the wire room, consists of two men and an apprentice.

Unfortunately the savings in labour costs we make compared with a hot metal operation are offset by higher costs elsewhere. The highest single extra cost factor is photographic materials and plates. We are using presensitised plates which cost us rather less than 10s. per broadsheet page. The value of the reclaimed plates is small. Conventional stereo plates, because

they can so easily be remelted, cost only about 2s. per page plate. Similarly our page negatives are considerably more expensive than the stereo department's papier mâché flong, and the photographic paper we use is much more expensive than reclaimable metal slugs.

The photographic paper presents quite a problem. We are currently using either 6″ or 8″ wide paper. But the majority of matter in the paper is single column, about 2″ wide. We could save paper by supplying the machine with 2″ rolls. But to do so would limit its flexibility and would mean changing magazines every time we wanted to run a two or three column story. For the moment, the problem is solved for us because the Lumitype magazine will not successfully run 2″ rolls of paper. But we are building a new type of magazine to take the narrow widths.

This new magazine should be of great advantage to newspapers. It enables the paper to be cut off when a story is complete and fed into an Ektamatic processor entirely in the daylight. We have for more than six months now been using stabilisation type paper which, apart from an occasional tendency to go sticky, gives us a remarkably rapid throughput and has quite revolutionised the use of photosetting for an evening paper. We can, in fact, pretty well match the conventional process for speed of rush copy through the system and on to the printing cylinder.

Obviously there are still many improvements we could make to cut corners still further. It would be attractive to find a lith film with a stabilisation emulsion which could reduce our current time of 2 minutes 55 seconds to process and dry our page negatives. A scanning platemaker might save us another $1\frac{1}{2}$ minutes in plate-burning and a small plate developer could save another 30 seconds.